OZONE DECOMPOSING CATALYST

Publication number: JP7080304
Publication date: 1995-03-28
Inventor: SASAOKA EIJI; KANESHIMA MASASHI; NAKATSUJI TADAO
Applicant: SAKAI CHEMICAL INDUSTRY CO
Classification:
- international: ***B01D53/86; B01J23/34;*** **B01D53/86; B01J23/16;** (IPC1-7): B01J23/34; B01D53/86
- european:
Application number: JP19930225978 19930910
Priority number(s): JP19930225978 19930910

Abstract of **JP7080304**

PURPOSE:To obtain an ozone decomposing catalyst capable of excellently removing ozone, excellent in durability, capable of being used for a long period and which is hardly affected by humidity by using a manganese oxide or its calcination product which is reduced in weight when heated from room temp. to a specified temp. as the main component. CONSTITUTION:This ozone decomposing catalyst consists of the manganese oxide or its calcination product which is decreased in weight by >=10% with respect to the initial weight in the weight change measurement by a thermobalance when heated from room temp. to 600 deg.C. The manganese oxide or its calcination product is formed by dissolving a water-soluble manganese salt in water to obtain the 0.3 to 30wt.% aq. soln. and then blowing a gaseous mixture of O3 and O2 into the soln. to bring about a reaction. The obtained precipitate is washed with water until the cleaning soln. becomes neutral, and the obtained solid reactional product is dried at 10-110 deg.C for 1-50hr to obtain manganese oxide. The dried material is calcined at 500-650 deg.C for 1-10hr in the air current at 10-1000cm<3>/min to obtain the calcination product.

[Cited Reference 1]

(TRANSLATION)
Japanese Patent Office
Official Laid - Open Patent Gazette
Japanese Laid - Open Patent Publication
(Kokai) No. Hei. 7 - 80304
Laid - Open Date: March 28, 1995
Application No.Hei.5 - 225978
Application Date: September 10, 1993
Inventors: Eiji Sasaoka (phonetic) et al
Applicant: Sakai Kagaku Kogyo K.K.(phonetic)
Title of Invention: A catalyst for the decomposition of ozone

.....

What Is Claimed:

[Claim 1] A catalyst for the decomposition of ozone containing, as the main component, manganese oxide or the sintered article thereof having such a kind of characteristic that when the temperature is raised up to 600 ℃ from a room temperature, the weight is decreased by more than 10 percent on the basis of the initial weight, in a weight variation measurement according to a thermo - balance.

[Claim 2] A catalyst for the decomposition of ozone containing, as the main component, manganese oxide obtained by oxydizing a manganate aqueous solution with ozone or the sintered article thereof.

.....

.....

.....

Partial English translations of page 3:
[0012] The shape of the catalayst of the present invention is not particularly limited, for example, it is possible to use such kinds of various shapes of as, for example, a honeycomb, a pellet, a round pillar, a plate, a pipe and so on.

.....

.....

.....

Example 1:

$Mn(NO_3)_2$ was dissolved in water thus to prepare about 400 ml of 3 % manganese nitrate aqueous solution. Such a kind of oxygen gas that contains 3 percent by volume obtained by passing oxygen by a voiceless electric charge type ozone generator was passed into this aqueous solution at a flow rate of 80 cc / minute for a period of 40 hours. At that time, the temperature of the aqueous solution was maintained at 15 ℃. The thus obtained precipitate was washed with an ion exchanging water till the washing liquid became neutral.

[0016] Next the filtering thereof was carried out and after the drying thereof was carried out at a temperature of 110 ℃ for a period of 25 hours, the thus obtained dried matter was sintered at a temperature of 550 ℃ for a period of 3 hours while circulating air (with 300 ml / minute) thus to obtain a manganese oxide powder.

Partial English translations of page 4:

(Catalyst Reaction);

The respective manganese oxide powders obtained in Examples 1 to 6 and Comparative Examples 1 to 6 (the representative particle diameter of 0.5 mm) were charged into a normal pressure circulating type charge layer reaction apparatus without carrier and the ozone decomposition was carried out under the conditions of an inlet ozone gas concentration of 235 ppm, 2.35 % of H_2O, 18.2 % of O_2, N_2 balance, SV 320, 000H^{-1}, 160 cm^3 / minute of the total flow amount, 0.03 cm^3 of catalyst charge volume and a temperature of 30 ℃.

[0019] Ozone decomposition rate (%) = [inlet ozone concentration - outlet ozone concentration] x 100.